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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,950	04/04/2002	Adalbert Bandemer	3821.01	9432
22852	7590	08/02/2005	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			BELLO, AGUSTIN	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 08/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/807,950

Applicant(s)

BANDEMER ET AL.

Examiner

Agustin Bello

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 11-14, 30, 31, 33, 34 and 44-48 is/are pending in the application.
4a) Of the above claim(s) 11, 12, 14, 30, 31, 47 and 48 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-6, 13, 33, 34 and 44-46 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/1/05.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species II in the reply filed on 7/1/05 is acknowledged. However, contrary to applicant's assertion, only claims 1-6, 13, 33-34, and 44-46 read on the elected species and its corresponding Figure.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1-6, 13, 33-34, and 44-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 1 recites the limitation "said PMD emulator" and "said measuring means" in line 6 and 8, respectively. There is insufficient antecedent basis for these limitation in the claim.

5. Claim 13 recites the limitation "said elements" in line 2. There is insufficient antecedent basis for this limitation in the claim. Furthermore, it is not clear to which elements the applicant is referring being that there are many elements in the system.

6. Claim 33 recites the limitation "said two PSP" and "said variable PMD delay". There is insufficient antecedent basis for this limitation in the claim.

7. Regarding claims 1-6, 13, 33-34, and 44-47, the word "means" is preceded by the word(s) "a" and "measuring" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s)

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preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-6, 13, 33, and 44-46, *as best understood in view of the 35 USC §112 rejection above*, are rejected under 35 U.S.C. 102(e) as being anticipated by Fishman (U.S. Patent No. 6,330,375).

Regarding claim 1, Fishman teaches a means (reference numeral 800 in Figure 3) for measuring PMD-induced distortions, an emulator unit (reference numeral 425 in Figure 1) for adjustable PMD levels, and a controller (reference numeral 470 in Figure 1) which the output signal of said measuring means is applied to and which serves to control said emulator unit, characterized in that said controller controls said PMD emulator unit in such way that continuous compensation of the PMD-induced signal distortion will be performed (see abstract).

Regarding claim 2, Fishman teaches characterized in that said PMD emulator unit includes a variable PMD delay unit (reference numerals 435, 440 445 in Figure 1) which consists of two PMD-involving elements (reference numerals 435, 445 in Figure 1) with a polarisation regulator (reference numeral 440 in Figure 1) disposed therebetween.

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Regarding claim 3, Fishman teaches that said PMD-involving elements are dispersive elements (e.g. fibers shown in Figure 1).

Regarding claim 4, Fishman teaches that said PMD-involving elements of said variable PMD delay elements are polarisation-maintaining fibres (reference numerals 435, 445 in Figure 1).

Regarding claim 5, Fishman teaches that said polarisation regulator of said variable PMD delay elements comprises a $\lambda/2$ wave plate or a Faraday rotator (reference numeral 440 in Figure 1).

Regarding claim 6, Fishman teaches that said polarisation regulator is implemented by a rotatable connection (reference numeral 440 in Figure 1) of the coupling site of the two PMD-involving elements.

Regarding claim 13, Fishman teaches characterized in that said elements (reference numeral 435 in Figure 445) are birefringent crystals having a birefringence adapted to be electrically influenced.

Regarding claim 33, Fishman teaches that said PMD emulator unit is a variable infinite polarization regulator (reference numeral 425 in Figure 1) having sufficient degrees of freedom, which projects said two PSP of the fibre to be compensated onto the PSP of said variable PMD delay element (reference numeral 435 in Figure 1), without thoroughly controlling a local minimum of the overall PMD.

Regarding claim 44, Fishman teaches that said controller comprises filters (reference numeral 825, 840 in Figure 3) for generating a control signal, which filter out high-frequency

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spectral fractions of the data signal so that the filtered signal reflects the degree of distortion of said detected data signal.

Regarding claim 45, Fishman teaches that said controller comprises two different filters (reference numeral 825, 840 in Figure 3) with respectively series-connected detectors (reference numeral 830, 845 in Figure 3) on the output side, which generate two analog signals on the basis of said data signal, whose ratio reflects the degree of distortion of said data signal independently of the signal power.

Regarding claim 46, Fishman teaches that characterized in that said controller minimizes the PMD-induced signal distortion by readjustment, in alternation, at the polarisation-influencing elements of said variable polarisation regulator (reference numeral 430 in Figure 1) and said variable PMD delay element (reference numeral 435, 440, 445 in Figure 1).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fishman in view of the prior art cited by the applicant to Noe in the article "Polarization Mode Dispersion Compensation at 10, 20, and 40 GB/S With Various Optical Equalizers."

Regarding claim 34, Fishman differs from the claimed invention in that Fishman fails to specifically teach that said variable polarisation regulator comprises an array of four $\lambda/4$ wave plates disposed in tandem. However, $\lambda/4$ waveplates are very well known in the art and are

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commonly used in polarization mode dispersion compensators. Furthermore, coupling of a plurality of wave plates is well known in the art as can be seen in Noe. One skilled in the art would have been motivated to couple a plurality of waveplates as taught by Noe in the device of Fishman in order to allow the system of Fishman to be endlessly rotatable (Noe page 1612 second column). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to include four $\lambda/4$ wave plates disposed in tandem in the system of Fishman.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB


AGUSTIN BELLO
PATENT EXAMINER